

REMARKS

The present invention relates to both a method and apparatus for the treatment of carbonaceous material. The process includes the step of introducing the material into a chamber having a closure means. The oxygen within the chamber is either extracted or displaced to provide a substantially free oxygen depleted atmosphere.

Thereafter, the material is irradiated by electromagnetic radiation of sufficient power and for a sufficient period of time to cause substantial degradation of the carbonaceous material to an ash-like residue.

Thereafter, oxygen and at least one combustible gas is introduced into the chamber and ignited to cause combustion thereby reducing the residue from the irradiation step to a fine ash.

Claims 1 and 17 form the only two independent claims in this application. Claim 1 is a method claim while claim 17 is an apparatus claim. Both of these claims, however, have been amended in a similar fashion.

More specifically, claim 1 has been amended to clearly set forth that the oxygen and air and combustible gas are introduced into the chamber only after the carbonaceous material has been degraded to an ash-like residue. Claim 17, i.e. the apparatus claim, has been amended in a similar fashion.

Claim 1 has also been amended to correct the numbering scheme of the roman numerals. This correction also overcomes the Examiner's rejection of claims 2, 4, 6, 9-12 and 14 under 35 U.S.C. §112. Additionally, the dependency of claim 27 has been corrected by this amendment and claim 31 has been canceled as duplicative.

The Patent Examiner, however, has rejected all of the previously submitted claims, except for claims 21 and 35, as unpatentable with primary reliance upon U.S. Patent No.

5,886,326 to Tang. However, in view of Applicant's amendments to the claims in this application, Applicant respectfully submits that this basis for rejection can no longer stand.

More specifically, the Tang patent discloses a microwave waste incinerator having a chamber in which the carbonaceous material is positioned. Tang evacuates the chamber of oxygen and then subjects the material to microwave radiation.

As is clear from column 1, lines 40-61, the initial microwave irradiation only dries the carbonaceous material and heats the carbonaceous material to temperatures in excess of 500° Centigrade. However, at the same time that the carbonaceous material is heated to these high temperatures, oxygen is introduced into the chamber which ignites the material and reduces the material to ash. See also column 2, line 62 – column 3, line 24 in which it is clear that the microwave irradiation of the material occurs simultaneously with the combustion of the material during the introduction of oxygen into the chamber.

Consequently, it is clear from the Tang reference that the application of the low microwave heat input of Tang does not degrade the waste material to an ash-like residue as clearly defined in claims 1 and 17 prior to combustion. Rather, the Tang patent merely uses the initial application of microwave energy to dry the waste material prior to the combustion phase.

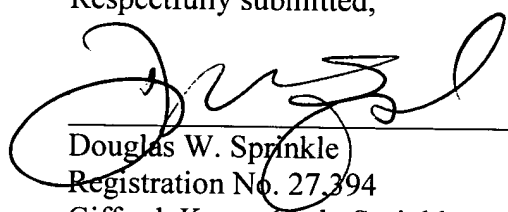
This is unlike Applicant's invention. In Applicant's invention, the electromagnetic radiation of the material occurs for a sufficient period and at sufficient power to reduce the carbonaceous material to an ash-like residue. Only after the radiation of the material reaches an ash-like residue is the ash-like residue then combusted with oxygen and the combustible gas. This aspect of Applicant's invention has been clarified in claims 1 and 17.

The secondary references utilized by the Patent Examiner in his rejection of several of the dependent claims do not cure or overcome this deficiency of Tang. None of them teach or

suggest, either alone or when combined with Tang, a method and apparatus for initially reducing the carbonaceous material to an ash-like residue utilizing electromagnetic radiation in a substantially oxygen-free atmosphere prior to combusting the carbonaceous material. Therefore, further discussion of these secondary references is unnecessary.

In view of the foregoing, Applicant respectfully submits that this case is now in condition for formal allowance and such action is respectfully solicited.

Respectfully submitted,



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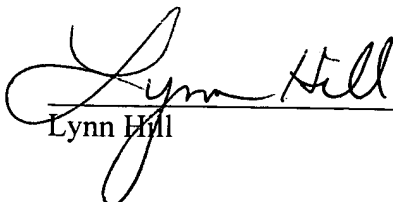
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